



Causeway designer Gil Marsh, left, watches Wayne Pannel (right) born on the day it opened and John Gilmour of Canning Districts athletic club, which used the Causeway. Picture: Rod Taylor

Wide-spanning career

JOHN GILBERT MARSH

Bridge Engineer

Born: Salisbury, England, 1925.

Died: Spearwood, WA, aged 91

When Gilbert Marsh retired in 1985 as principal engineer — design, his branch in WA's Main Roads Department was the most highly regarded in Australia. His superannuation included an international reputation as one of the most innovative and technically accomplished engineers of his generation.

Left to continue his work was a team he mentored, among them Ken Michael, a former commissioner of main roads and later WA governor, consulting engineer Joe Wyche, and Jim Gill, former commissioner of railways, and CEO of WA Water Corporation.

"Before proposing a solution," Dr Michael recalled, "Gil always started from first principles. I never forgot that."

"He was a really smart guy. Slightly geeky but very bright," Wyche recalled. "He was interested in everything. He had a phenomenal memory for weather events causing bridge flooding. He understood computers, in the 1960s... he was always technically ahead of you and learnt German so he could read technical literature by the likes of Fritz Leonhardt, who became a friend."

Leonhardt was a pioneer in the use of reinforced and prestressed concrete, and developed a launching system for use in bridge construction. Gil added this technique to his toolkit.

Dr Gill remembers Gil's table tennis every lunchtime in the staff amenities room, playing "with whoever arrived. He was the only person at his level who did."

One of Gil's early achievements, under the direction of predecessor, E.W. Godfrey, was the design and construction, between 1947 and

1952, of the two bridges that comprise the Causeway at the eastern end of the city. It was the first bridge in WA to use a composite construction of steel and concrete. From 1954, he liaised with architects, engineers and construction companies, local and international, to build the Narrows Bridge, the largest prestressed concrete bridge in the world in 1959.

The 1961 Gledden Travelling Fellowship, awarded by UWA, financed a year at Imperial College, London.

Through that experience he better understood soil mechanics and sand drains that proved so useful in the Narrows Bridge project. The 8ha reclamation and consolidation work commenced in 1962, for the northern and southern approaches to the bridge that links the Mitchell and Kwinana freeways. The use of 43,000 vertical sand drains through the mud, and the gradual build-up of embankments to squeeze it out, was the first major use of this technique in Australia.

His Canning Highway bridge and footbridge over the freeway using partially prestressed concrete was also a first. So, too, was the Mandurah bridge for which he used Leonhardt's incremental launching system.

Advances in bridge design and construction were not the only runs on the board under Gil's inspiring leadership. Weigh-in-motion systems recording data from heavy vehicles was a new technology which he greatly advanced in Australia, with the Culway system applied to culverts fitted with strain gauges.

During Gil's 28 years at the top, there was a rapid development, at the State level, of roads to meet the extensive needs of an expanding mineral, agricultural and tourist economy. Nationally, there was also significant progress in bridge engineering.

Gil was involved. He was on

the bridge committee of the National Association of Australian State Road Authorities and presented more than 20 technical papers, besides chairing its bridge design code committee (1980-1985) and acting as technical editor for its 1992 Bridge Design Code. Between 1980 and 1983 he was the Australian representative on the Permanent International Association of Road Congresses that culminated in its XVII World Congress in Sydney in 1983.

John Gilbert Marsh, the first of two sons of farmer John William Marsh and Isla a Becket (nee Chomley), was born in Salisbury, England, on November 22, 1925. Rosemary preceded him in 1924, and Brian followed in 1927. The family then migrated to Western Australia.

Gilbert, the name he was known by but shortened to Gil, completed his primary education at North Kalgoorlie Primary School (1931-37), secondary at Eastern Goldfields High (1938-1942), and a bachelor of engineering at UWA. His graduation in 1948 was accompanied by marriage to Phyllis Morton, a teacher and gifted pianist, who died in 1994. They had two children, Alison and Lloyd, who survive him.

Gil had joined Main Roads in 1947, was promoted to assistant bridge engineer in 1954, and bridge engineer in 1957, responsible for both bridge and road design. An inveterate traveller, with an engaging sense of humour, he loved tennis and fishing, and excelled at rowing. He represented the State in the 1948 Kings Cup, placed second to NSW.

Combining first principles with contemporary practice and prudent supervision, Gilbert Marsh ensured bridges were efficient, elegant, and safe. In a State as large as WA, this was some achievement. He died on June 22 at Amberley Nursing Home, Spearwood.

David Hough